The nearest approach to the production of the stereoscopic effect from a single picture is by photographing the illustration with its plane inclined at an angle of the optic axis of the lens, first in one direction, and then again in the opposite direction; in which manner two dissimilar pictures are produced, which can be viewed with an ordinary stereoscope, and the result is by no means unsatisfactory. The process, however, is inconvenient.

For a long time past the writer has been experimenting with stereoscopy, and amongst other objects one has been to secure a stereoscopic effect with a single picture. This he has now succeeded in attaining in a comparatively simple manner.

If a stereoscopic slide is examined it will be found that each picture is compressed, so to speak, on the inner side, which is equivalent to saying that the central line of any one picture is shifted from the centre inwards, thus expanding one half of the picture and compressing the other half.

It therefore appeared to the writer that, if by some means a single picture could be made to give two images, each one compressed in a suitable manner and then viewed with the ordinary stereoscopic lenses, the solid effect should be produced, and such is the case.

The method is as follows:—A large deep cylindrical lens is taken and cut in two along the line where the lens is thinnest. Thus two wedges are produced, each having one side curved and the other side flat. If these two pieces are placed together, with the thick portions towards one another, and held at a short distance over any picture, the eyes will perceive an image of the illustration in each lens, and the pictures will be compressed in the manner already referred to.

All that is now necessary is to view these two images with ordinary stereoscopic lenses. One picture will result, as solid in appearance as if the ordinary stereo-slide had been employed.

The apparatus will be found of considerable use for looking at small photographic portraits, landscapes, &c., as well as engravings. The result is very pretty.

Naturally one class of picture must suffer under the operation; but as these are comparatively rare, there is an extended use for the instrument, which is called the Pseudoscope.

The pictures unsuitable are those which represent an object when placed very near the eyes, since the image produced by solid objects in each eye in such cases differ greatly; but this difference in the image is comparatively small after a distance of, say, 15 to 20 feet.

David Salomons.

MAGNETIC OBSERVATIONS IN THE HARZ MOUNTAINS.

Dr. Eschenhagen has made an interesting series of magnetic observations at forty-two stations in the Harz Mountains.

The uncertainty of a declination observation was about 1′, of the dip with two needles about 1′·2, and the probable error of the horizontal force was about ± 0·00010 C.G.S. units. As it was intended to compare the results with those of a survey of the same district in which the deviations of the plumb-line were determined, the stations were selected with reference to this fact, and also to the geological conformation of the country.

The magnetic disturbances and disturbing forces were determined by a method essentially similar to that employed in the survey of the United Kingdom. The results were not very definite in the northern part of the district examined, but a clearly marked "ridge-line," or locus of attraction on the north-pole of the magnet, was discovered in the south. In one part of this the vertical disturbing force nearly reached 0·00400 C.G.S. units. There are few stations in England and Wales where the disturbance is as large as this, though at Stratford-on-Avon it is exceeded by 25 per cent. At some places purely local attractions of very much larger magnitude were detected. Thus, on the Leistklippe the dip was altered by 11′, and the vertical disturbing force was 0·04224 C.G.S., or one-tenth of the whole vertical force. No such remarkable effects were observed near the principal granitic masses, such as the Brocken.

The fact that the magnetic ridge-line lies to the south of these is explained by the hypothesis that the granitic mass, of which the Brocken is the upper end, extends underground in a direction inclined to the vertical, and running from the surface towards the south. This view is, in the opinion of Dr. Eschenhagen, consistent with the geological facts. As, however, the granite is but slightly magnetic, it is also necessary to suppose that the heavier, more magnetic granite, lies deep, and is only brought near to the surface at a few points such as those at which the greatest local disturbances occur.

The local deviations of the plumb-line were deduced from observations made by the Royal Prussian Geodetic Institute. To the north of the mountains the plumb-line is deflected to the south; from the south an attraction towards the north is detected. The line of no deviation is to the south of the Brocken, and runs nearly parallel to, but about 10–12 km. north of, the magnetic ridge-line.

The remarkable result is therefore attained that (1) geological evidence, (2) the magnetic needle, and (3) the plumb-line all point to the conclusion that the heavier rocks lie some distance to the south of the chief visible masses of granite.

Dr. Eschenhagen is careful to point out that it is unlikely that a similar agreement would be attained in every place where similar experiments might be carried out, as the rocks of greatest density are not necessarily magnetic. None the less, his observations make it probable that the magnet, the pendulum and the plumb-line may add much to our knowledge of the details of the constitution of the crust of the earth; and his survey of the Harz Mountains is one of the most striking attempts which have yet been made to combine the results of magnetic and geodetic surveys.

A. W. R.

THE JOURNAL OF ANATOMY AND PHYSIOLOGY.

Nearly nine years ago, on the occasion of the coming of age of the above-named Journal, we directed attention (Nature, vol. xxxvii. p. 441) to its association, as a medium of publication, with the then newly established "Anatomical Society of Great Britain and Ireland." Since that time the connection between the two has been maintained, much to the advantage of the Journal, for not only have the "Proceedings" of the Society materially improved and increased in bulk and importance, but many of the leading papers which have appeared in the body of the Journal have reached it through the mediation of the Society, while in the latter's annual reports of its "Committee of Collective Investigation" there have been contributed results of great service alike to the scientific and surgical anatomist. Owing to the death of the founder of the Journal and main supporter during its earlier years, the beloved and universally respected Sir G. Humphry, a reconstitution of the staff of its "conductors" was recently decided upon, and with the issue for October last a new series was accordingly commenced, Profs. Sir W. Turner and J. G. McKendrick, so long associated with its success, announcing that for the future they would be assisted by Profs. D. J. Cunningham, A. Macalister, and G. D. Thane. There has just reached us the second (January) part which has appeared under these new auspices. During the years which have elapsed since our previous notice was written, three of the five present conductors of the Journal have been presidents of the Anatomical Society, while Prof. Macalister, having been on November 26 elected to that office, now combines the two functions. And during the same period the Anatomical Society undertook the preparation, and the conductors of the Journal the publication, of a couple of analytical indexes to its first thirty volumes, entrusting the task to Mr. A. W. Kappel, the efficient librarian of

© 1898 Nature Publishing Group

the Linnean Society of London, who has carried it out with conspicuous success. Society and Journal have thus become more and more closely connected, and to what extent may be gathered from the fact that of the thirty-three papers which make up the body of the first two parts of the new series, fifteen were read at the Society's meetings. Of these, the papers by Prof. D. J. Cunningham and Dr. Elliot Smith on the anatomy of the cerebral cortex and fornix stand pre-eminent, as important communications by leading investigators, who with Symington and others have kept this rapidly developing department of laborious research fully abreast of the continental standard set by von Kölliker, Edinger, Ziehen, and those who have followed in the wake of Golgi and y Cajal. Dr. Elliot Smith's monographs are indispensable to the comparative neurologist, and they amply fulfil the expectation raised by his early investigations in Australia, and justify the graceful comment paid by Sir W. Turner at the summer meeting of the Anatomical Society, held in Dublin in June last, at which one was hurriedly read. Beyond this, the second issue in the new series of the Journal is especially noteworthy for a paper by Prof. Symington upon the thymus gland in Marsupials, about which little indeed is known, and for the first part of one by Dr. D. A. Welsh upon the parathyroid glands, both being exceedingly welcome now that current work upon the ductless- and blood-glands is revolutionising our knowledge and conceptions of these remarkable organs. Noteworthy also is the completion in the same part of a lengthy treatise by Dr. W. McDougall upon a theory of muscular contraction, since by comparison with a remarkable paper by Prof. Rutherford, side by side with which it has for the most part appeared, it opens up fresh themes for controversy upon this interminable topic, which show at least that the last word has not been written concerning it, and that there is sore need of its attack on other than morphological lines. Returning to the first part, we note a paper by Mr. F. J. Cole on the urinogenital system of the male guinea-pig, which for thoroughness of investigation and exhaustive literary research is worthy the standard he adopted in a recent paper on the nervous system of the chimæroids, and the very interesting announcement by Prof. Disse, of Marburg, that the olfactory nerve fibres in the chick arise from cells situated in the epithelium of the olfactory pit, and by Prof. Leboucq, of Ghent, that in the full-grown fœtus of a *Vespertilio* the fourth digit of the manus is tetraphalangeate.

Of the remaining papers one only calls for special comment, viz. that "On the anatomy of *Macropus rufus*," by Prof. Bertram Windle and Mr. F. G. Parsons, since it reveals some strange contradictions both within its own limits and by comparison with the afore-mentioned paper by Symington. It contains a great deal by way of careful and detailed anatomical description which, in correlation with similar papers which its authors have published elsewhere, ought to be of service for reference. Under the heading "Digestive System," however, they have described and figured the liver on one page as destitute of a left central lobe, the lobe present on that side being regarded as a left lateral, while on the very next page the latter is said to be absent. Their first conclusion is based on the relationships of the falciform ligament, unquestionably the only structure of real morphological value for the purpose, and they introduce some pertinent criticism of the methods of other anatomists. All the more remarkable, therefore, their account of certain glands, as said to exist in the "fœtus" (strictly a pouch specimen). On p 132 there is given a processed illustration, little resembling anything in nature, with an accompanying description of glandular structures regarded as "sublingual" and "extra-salivary." That the former are merely the ordinary sub-maxillary glands, there seems no manner of doubt. Concerning the latter, we are assured that "histological examination proved that they were salivary in nature." Great though the backward extension of the salivary glands in some mammals, nothing at all approximate to the remarkable condition here alleged has hitherto been observed, and sufficient is recorded by the authors of the detailed relationships of the so-called "extra salivary" glands to render it tolerably certain that they are but cervical thymus, a conclusion borne out by the authors' confession that they "did not succeed in tracing the termination of their ducts," and by comparison of the descriptions and figures of the neck glands in *M. giganteus* given by Symington, as he justly points out (p. 283). The brief statement which we cite concerning the histology of these glands is wholly insufficient. If they be really salivary, for so extraordinary a condition at least a figure and full details of microscopic sections should have been furnished in absolute proof. While we await with interest further investigation as to the real nature of these, we cannot allow the statements concerning the liver to pass without further comment. Leading anatomical journals other than that now under review might be cited in which inaccuracies unpardonable at times appear. Authors, when inexperienced, will write extraordinary things; experienced authors still more extraordinary. And surely the rendering of Nathusius's well-known name (p. xxix. Suppl.) as "Nathenius," is a matter which the editors, if not the author, should not have allowed to pass. The first two parts of the new issue of the Journal, as a whole admirable and encouraging, give excellent promise for the future, if only the conductors will declare themselves responsible editors and a proper coordination between authors and editors be assured.

GEOLOGY AND SANITARY SCIENCE.[1]

THIS memoir is a new departure on the part of the Geological Survey, being devoted only to applied geology, to questions which have for a long time caused the flow of a steady stream of inquirers to Jermyn Street. It shows how useful is some knowledge of geology to the proper understanding of many matters that are ever cropping up, privately in such things as the choice of a site for a dwelling, and publicly in such as water-supply for a district.

The extent of the district treated is shown by the excellent chromolithographed map, and may be understood from the following list of the border-towns, with London in the centre:—Chesham, Amersham, Beaconsfield, Windsor, Guildford, Dorking, Reigate, Sevenoaks, Gravesend, Billericay, Chipping Ongar, Epping and St. Albans. The colours differ largely from those used on the Survey maps, and the map differs from the lately issued Index Map (on the same scale, four miles to an inch) in showing the various divisions of the Drift; so that there are thirteen colours, besides a blank for Alluvium.

A short description is given of the general structure of the London Basin, with parts of its borders, and then (pp. 7–25) a more detailed account of the beds dealt with, from the Made Ground of London down to the Hastings Beds of the Weald; thus going a little beyond the area of the map, on the south, in which the last are not shown. These are grouped, not in the usual geologic way, but according to character; all gravels and sands being under one heading, all clays under another, with an intervening "mixed sub-soils" for those divisions that decline to be distinctly one thing or another. Under each of the many sub-headings

---

[1] "Memoirs of the Geological Survey. Soils and Sub-soils from a Sanitary Point of View; with especial reference to London and its Neighbourhood." By H. B. Woodward. Large 8vo. Pp. vi + 58; folding geologic map (13 colours).

© 1898 Nature Publishing Group